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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
MILORD, MARCEAU	
ART UNIT	**PAPER NUMBER**
2682	8

DATE MAILED: 03/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/824,564	WATSON ET AL	
	Examiner	Art Unit	
	Marceau Milord	2682	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 April 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 April 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 5,7.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary

skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel et al (US Patent No 6157681) in view of Windyka (US Patent No 5592179).

Regarding claims 1-2, Daniel et al discloses a method of reading information from a signal transmitted by a transmitter (18 of fig. 2), said method comprising the steps of: providing a phased array antenna (10 of fig. 1; col. 2, lines 35-66); adjusting said phased array antenna to receive said signal (col. 1, lines 16-32; col. 6, line 50- col. 7, line 24).

However, Daniel et al does not specifically disclose the steps of reading information from a received signal; and using a phased array antenna to determine a direction of incidence of said signal on said phased array antenna; and electronically steering said phased array antenna toward said signal.

On the other hand, Windyka, from the same field of endeavor, discloses a phase array antenna for use with a frequency-hopping transmitter that includes a plurality of elemental antennas, each associated with a phase-shifter, which is controlled to form a beam in the desired direction at a base frequency. The antenna elements are formed into sub-arrays each of which is fed from a common port. Furthermore, Windyka shows in figure 5, an antenna beam correction controller, which is coupled to the additional phase shifters and to the source for generating beam direction correction signals in response to the frequency indicative control signals, for generating a group phase shift of the RF signals, which tends to offset the deviations of the beam from the desired direction. In addition, the antenna beam correction controller is coupled to the beam

direction control signal generator for adjusting the amount of group phase shift in response to the phase shift commanded. The correction phase shifters are controlled at each frequency hop (figs. 3-5; col. 2, lines 19-61; col. 3, line 36-67; col. 6, line 8- col. 7, line 11). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Windyka to the system of Daniel in order to determine the direction of incidence on a phase array antenna and adjust this phase array antenna for the purpose of receiving the strongest incident signal.

Regarding claims 3-4, Daniel et al as applied to claim 1 above differ from claims 3-4 in the present invention, in that Daniel fails to disclose the steps of using said phased array antenna to determine a direction of incidence of a strongest of said signals on said phased array antenna, and electronically steering said phased array antenna to receive said strongest incident signal; using said phased array antenna to determine a direction of incidence of a highest quality of said signals on said phased array antenna; and electronically steering said phased array antenna to receive the incident signal of the highest quality.

However, Windyka discloses a phase array antenna for use with a frequency-hopping transmitter that includes a plurality of elemental antennas, each associated with a phase-shifter, which is controlled to form a beam in the desired direction at a base frequency. The antenna elements are formed into sub-arrays each of which is fed from a common port. Furthermore, Windyka shows in figure 5, an antenna beam correction controller, which is coupled to the additional phase shifters and to the source for generating beam direction correction signals in response to the frequency indicative control signals, for generating a group phase shift of the RF signals, which tends to offset the deviations of the beam from the desired direction. In addition,

the antenna beam correction controller is coupled to the beam direction control signal generator for adjusting the amount of group phase shift in response to the phase shift commanded. The correction phase shifters are controlled at each frequency hop (figs. 3-5; col. 2, lines 19-61; col. 3, line 36-67; col. 6, line 8- col. 7, line 11). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Windyka to the system of Daniel in order to determine the direction of incidence on a phase array antenna and adjust this phase array antenna for the purpose of receiving the strongest incident signal.

Claim 5 contains similar limitations addressed in claims 3-4, and therefore is rejected under a similar rationale.

Regarding claim 6, Daniel et al as modified discloses a method of reading information from a signal transmitted by a transmitter (18 of fig. 2), wherein said signal is comprised of an information carrying period and a non-information carrying period, and said steps of tracking and steering are performed substantially during said non information carrying period of said signal (col. 5, lines 26-60; col. 7, lines 20-65).

Regarding claim 7, Daniel et al as modified discloses a method of reading information from a signal transmitted by a transmitter (18 of fig. 2), wherein said step of providing a phased array antenna comprises the step of providing an LC phased array antenna (col. 2, line 44- col. 3, line 61).

Regarding claim 8, Daniel et al as modified discloses a method of reading information from a signal transmitted by a transmitter (18 of fig. 2), wherein said signal transmitted by said transmitter comprises a frequency modulated video signal, and said adjusting step includes receiving said frequency modulated video signal (col. 6, line 50- col. 7, line 24).

Regarding claim 9, Daniel et al as modified discloses a method of reading information from a signal transmitted by a transmitter (18 of fig. 2), wherein said frequency modulated video signal has a frequency in the range of 12.2GHz to 12.5GHz (col. 1, lines 34-34; col. 2, lines 44-66; col. 6, line 50- col. 7, line 15).

Regarding claim 10, Daniel et al discloses a method of reading information from a transmitter (18 of fig. 2), said transmitter transmitting a signal, said method comprising the steps of: providing a phased array antenna (10 of fig. 1; col. 2, lines 35-66); electronically steering said phased array antenna to concurrently receive a signal transmitted by said transmitter (fig. 2, fig. 6 and fig. 8; col. 6, line 50- col. 7, line 24; it could be several transmitters).

However, Daniel et al does not specifically disclose the step of reading information from two received signals.

On the other hand, Windyka, from the same field of endeavor, discloses a phase array antenna for use with a frequency-hopping transmitter that includes a plurality of elemental antennas, each associated with a phase-shifter, which is controlled to form a beam in the desired direction at a base frequency. The antenna elements are formed into sub-arrays each of which is fed from a common port. Furthermore, Windyka shows in figure 5, an antenna beam correction controller, which is coupled to the additional phase shifters and to the source for generating beam direction correction signals in response to the frequency indicative control signals, for generating a group phase shift of the RF signals, which tends to offset the deviations of the beam from the desired direction. In addition, the antenna beam correction controller is coupled to the beam direction control signal generator for adjusting the amount of group phase shift in response to the phase shift commanded. The correction phase shifters are controlled at each frequency hop (figs.

3-5; col. 2, lines 19-61; col. 3, line 36-67; col. 6, line 8- col. 7, line 11). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Windyka to the system of Daniel in order to determine the direction of incidence on a phase array antenna and adjust this phase array antenna for the purpose of receiving the strongest incident signal.

Regarding claim 11, Daniel et al discloses a method of reading information from at least two signals transmitted by a transmitter (18 of fig. 2), said method comprising the steps of; providing a phased array antenna (10 of fig. 1; col. 2, lines 35-66); electronically steering said phased array antenna to concurrently receive said at least two signals (fig. 2, fig. 6 and fig. 8; col. 6, line 50- col. 7, line 24).

However, Daniel et al does not specifically disclose the step of reading information from two received signals.

On the other hand, Windyka, from the same field of endeavor, discloses a phase array antenna for use with a frequency-hopping transmitter that includes a plurality of elemental antennas, each associated with a phase-shifter, which is controlled to form a beam in the desired direction at a base frequency. The antenna elements are formed into sub-arrays each of which is fed from a common port. Furthermore, Windyka shows in figure 5, an antenna beam correction controller, which is coupled to the additional phase shifters and to the source for generating beam direction correction signals in response to the frequency indicative control signals, for generating a group phase shift of the RF signals, which tends to offset the deviations of the beam from the desired direction. In addition, the antenna beam correction controller is coupled to the beam direction control signal generator for adjusting the amount of group phase shift in response to the

phase shift commanded. The correction phase shifters are controlled at each frequency hop (figs. 3-5; col. 2, lines 19-61; col. 3, line 36-67; col. 6, line 8- col. 7, line 11). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Windyka to the system of Daniel in order to determine the direction of incidence on a phase array antenna and adjust this phase array antenna for the purpose of receiving the strongest incident signal.

Regarding claim 12, Daniel et al discloses a receiver for receiving an incident signal (figs. 1-2) said incident signal including information herein, said receiver comprising: a phased array antenna (10 of fig. 1; col. 2, lines 35-66), said phased array antenna (10 of fig. 1) comprising an antenna array of a plurality of spatially separated antenna elements (12 of fig. 2), each of said antenna elements producing an associated electrical signal in response to said incident signal (col. 3, lines 5- 61), a phase shifter (74 of fig. 3) applying a phase shift to each said associated electrical signal and producing a corresponding phase shifted electrical signal (col. 5, lines 26-60; fig. 3, fig. 6 and fig. 8; col. 6, line 50- col. 7, line 24).

However, Daniel et al does not specifically disclose the features of a phased array controller, wherein said phased array controller controlling the phase shift applied by said phase shifters to said electrical signals, and a combiner for combining said phase shifted electrical signals thereby producing an electrical output signal, wherein said applied phase shifts result in the information contained in said incident signal being output.

On the other hand, Windyka, from the same field of endeavor, discloses a phase array antenna for use with a frequency-hopping transmitter that includes a plurality of elemental antennas, each associated with a phase-shifter, which is controlled to form a beam in the desired

direction at a base frequency. The antenna elements are formed into sub-arrays each of which is fed from a common port. Furthermore, Windyka shows in figure 5, an antenna beam correction controller, which is coupled to the additional phase shifters and to the source for generating beam direction correction signals in response to the frequency indicative control signals, for generating a group phase shift of the RF signals, which tends to offset the deviations of the beam from the desired direction. In addition, the antenna beam correction controller is coupled to the beam direction control signal generator for adjusting the amount of group phase shift in response to the phase shift commanded. The correction phase shifters are controlled at each frequency hop (figs. 3-5; col. 2, lines 19-61; col. 3, line 36-67; col. 6, line 8- col. 7, line 11). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Windyka to the system of Daniel in order to determine the direction of incidence on a phase array antenna and adjust this phase array antenna for the purpose of receiving the strongest incident signal.

Regarding claim 13, Daniel et al as modified discloses a receiver for receiving an incident signal (figs. 1-2) said incident signal including information herein, said receiver comprising: a phased array antenna (10 of fig. 1; col. 2, lines 35-66), including a signal strength monitor, said signal strength monitor measuring the strength of said electrical output signal (col. 6, line 50- col. 7, line 49; col. 8, line 30- col. 9, line 22).

Regarding claim 14, Daniel et al discloses a receiver for receiving an incident signal (figs. 1-2) said incident signal including information herein, said receiver comprising: a phased array antenna (10 of fig. 1; col. 2, lines 35-66), including a signal quality monitor, said signal

quality monitor measuring the quality of said electrical output signal (col. 6, line 50- col. 7, line 49; col. 8, line 30- col. 9, line 22).

Regarding claim 15, Daniel et al as modified discloses a receiver for receiving an incident signal (figs. 1-2) said incident signal including information herein, said receiver comprising: a phased array antenna (10 of fig. 1; col. 2, lines 35-66), wherein said incident signal is comprised of a frequency modulated analogue video signal (col. 1, lines 34-34; col. 2, lines 44-66).

Regarding claim 16, Daniel et al discloses a receiver for receiving at least two incident signals (figs. 1-2), said incident signals including information therein, said receiver comprising: a phased array antenna (10 of fig. 1; col. 2, lines 35-66), said phased array antenna (10 of fig. 1) comprising an antenna array of a plurality of spatially separated antenna elements (12 of fig. 2), each of said antenna elements producing associated electrical signals in response to said incident signals (col. 3, lines 5- 61), at least two phase shifters (74 of fig. 3; it could be two phase shifters), each phase shifter applying a phase shift to each said associated electrical signals and producing corresponding phase shifted electrical signals (col. 5, lines 26-60; fig. 3, fig. 6 and fig. 8; col. 6, line 50- col. 7, line 24).

However, Daniel et al does not specifically disclose the features of a phased array controller, wherein said phased array controller controlling the phase shift applied by said phase shifters to said electrical signals applied by said additional phase shifter; and a combiner for combining said phase shifted electrical signals thereby producing at least two electrical output signals, wherein said applied phase shifts result in the information contained in said at least two incident signals being output.

On the other hand, Windyka, from the same field of endeavor, discloses a phase array antenna for use with a frequency-hopping transmitter that includes a plurality of elemental antennas, each associated with a phase-shifter, which is controlled to form a beam in the desired direction at a base frequency. The antenna elements are formed into sub-arrays each of which is fed from a common port. Furthermore, Windyka shows in figure 5, an antenna beam correction controller, which is coupled to the additional phase shifters and to the source for generating beam direction correction signals in response to the frequency indicative control signals, for generating a group phase shift of the RF signals, which tends to offset the deviations of the beam from the desired direction. In addition, the antenna beam correction controller is coupled to the beam direction control signal generator for adjusting the amount of group phase shift in response to the phase shift commanded. The correction phase shifters are controlled at each frequency hop (figs. 3-5; col. 2, lines 19-61; col. 3, line 36-67; col. 6, line 8- col. 7, line 11). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Windyka to the system of Daniel in order to determine the direction of incidence on a phase array antenna and adjust this phase array antenna for the purpose of receiving the strongest incident signal.

Regarding claim 17, Daniel et al as modified discloses a receiver for receiving at least two incident signals (figs. 1-2), including at least one signal strength monitor, said signal strength monitor measuring the strength of at least one of said at least two electrical output signals (col. 6, line 50- col. 7, line 49; col. 8, line 30- col. 9, line 22).

Regarding claim 18, Daniel et al as modified discloses a receiver for receiving at least two incident signals (figs. 1-2), including at least one signal quality monitor, said signal quality

monitor measuring the quality of at least one of said two electrical output signals (col. 6, line 50- col. 7, line 49; col. 8, line 30- col. 9, line 22).

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lee et al US Patent No 5253188 discloses an apparatus for testing a microwave phased array antenna having a plurality of radiating elements including a transmission line for signal injection and switching components to selectively establish signal paths from a transmitter, and through a plurality of transmit/receive modules, to a performance monitor.

Harrison et al US Patent N0 5274844 discloses a method, which is offered of automatically beam forming a radio frequency transmitter having an array antenna.

Holt et al US Patent No 6226531 B1 discloses a high capacity broadband base station that employs a wideband radio and phase array processing subsystem.

Dent US Patent No 5724666 discloses a bases station that includes first and second antenna arrays for receiving first and second rotational polarization, and a polarization diversity receiver connected to the first and second antenna arrays for processing respective first and second receive signals from a mobile station to generate an enhanced quality output receive signal based upon polarization diversity reception.

Groenenboom US Patent No 6140962 discloses a multiphase phased array antenna, with each antenna face being provided with a plurality of T/R modules.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marceau Milord whose telephone number is 703-306-3023. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian C. Chin can be reached on 703-308-6739. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MMilord

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Examiner

Art Unit 2682